

# Yuting Wei

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Statistics & Data Science  
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## Employment

### University of Pennsylvania

- Assistant Professor, Statistics and Data Science, The Wharton School, 07/2021 - present
- Affiliated Faculty, Applied Mathematics and Computational Science (AMCS), 01/2022 - present

### Carnegie Mellon University

- Assistant Professor, Statistics and Data Science, 08/2019 - 06/2021

### Stanford University

- Stein Fellow/Lecturer, Department of Statistics, 09/2018 - 07/2019

## Education

### University of California, Berkeley, Ph.D. in Statistics, 2013 - 2018

- Thesis: A geometric perspective on some topics in statistical learning
- Advisors: Martin Wainwright, Aditya Guntuboyina
- Thesis committee: Martin Wainwright, Aditya Guntuboyina, Peter Bickel, Venkat Anantharam

### Peking University, Bachelor of Science (B.S.), Applied Mathematics, 2009 - 2013

- Advisor: Jinzhu Jia, Peking University

### Peking University, Bachelor of Arts (B.A.) Economics, 2010 - 2013

## Selected Honors & Awards

ICSA Junior Researcher Award, 2023

Google Research Scholar Award, 2023

Visiting International Professor Fellowship, Ruhr-Universität Bochum, 2023

Bernoulli Society New Researcher Award (honorable mention), 2022

NSF CAREER Award, 2022

INFORMS George Nicholson Award, Finalist, 2021

Stein Fellowship, Stanford University, 2019

Erich L. Lehmann Citation, University of California, Berkeley, 2018

Outstanding Graduate of Peking University, 2013

Outstanding Winner of Annual Peking University Research Competition (top 10/5000), 2013

Best Overall Winner in 2nd Machine Learning Competition in Immunology, 2012

President Research Fund, Peking University, 2011-2012

## Research Interests

- High-dimensional and nonparametric statistics
- Statistical machine learning
- Reinforcement learning
- Applications in bioinformatics and statistical genomics

## Short-term Appointments

**Simons Institute for the Theory of Computing**, University of California, Berkeley

Visiting scientist, 08/2021 - 12/2021

**Institute for Mathematical Research (FIM)**, ETH Zürich

Visiting researcher, 09/2015 - 12/2015

**Department of Mathematics**, City University of Hong Kong

Visiting researcher, 08/2012 - 11/2012

## Grant Support

- G1. “Bridging Game Theory, Statistics and Optimization in Multi-Agent Reinforcement Learning,” Google Research Scholar Award, Principal Investigator, 2023 - 2024
- G2. “CAREER: Statistical Learning from a Modern Perspective: Over-parameterization, Regularization, and Generalization,” National Science Foundation (NSF), Principal Investigator, DMS-2143215, 2022 - 2027
- G3. “CIF: Medium: Statistical and Algorithmic Foundations of Efficient Reinforcement Learning,” National Science Foundation (NSF), Principal Investigator, CIF-2106778, 2021 - 2025
- G4. “Collaborative Research: Fine-Grained Statistical Inference in High Dimension: Actionable Information, Bias Reduction, and Optimality,” National Science Foundation (NSF), Principal Investigator, DMS-2015447/2147546, 2020 - 2023
- G5. “CIF: Small: Resource-Efficient Statistical Inference in Networked Environments,” National Science Foundation (NSF), co-Principal Investigator, CCF-2007911, 2020 - 2023

## Short Courses & Tutorials

- S1. “Statistical and Algorithmic Foundations of Reinforcement Learning,” CE Course, *Joint Statistical Meetings (JSM) 2023*, cotaught with Yuejie Chi and Yuxin Chen, Aug. 2023.
- S2. “Statistical and Algorithmic Foundations of Reinforcement Learning,” Short Course, *Beijing International Center for Mathematical Research and School of Mathematical Science, Peking University*, Jul. 2023.
- S3. “Non-asymptotic Analysis for Reinforcement Learning,” Tutorial, *ACM SIGMETRICS*, cotaught with Yuxin Chen and Yuejie Chi, Jun. 2023.
- S4. “Reinforcement Learning: Fundamentals, Algorithms, and Theory,” *International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2022*, cotaught with Yuejie Chi and Yuxin Chen, May. 2022.
- S5. “Statistical and Algorithmic Foundations of Reinforcement Learning,” *ICSA 2021 Applied Statistics Symposium Short Course*, cotaught with Yuejie Chi, Yuxin Chen and Zhengyuan Zhou, Sep. 2021.

## Journal Articles & Preprints

- J1. Gen Li, Wei Fan, **Yuting Wei**, “Approximate message passing from random initialization with applications to  $Z_2$  synchronization,” under revision, *Proceedings of the National Academy of Sciences (PNAS)*, arxiv:2302.03682, 2023.
- J2. Laixi Shi, Gen Li, **Yuting Wei**, Yuxin Chen, Matthieu Geist, Yuejie Chi, “The curious price of distributional robustness in reinforcement learning with a generative model,” arXiv:2305.16589, 2023.
- J3. Gen Li\*, Weichen Wu\*, Yuejie Chi, Cong Ma, Alessandro Rinaldo, **Yuting Wei**, “Sharpening the sample complexities for policy evaluation with linear function approximation,” arXiv:2305.19001, 2023.
- J4. Gen Li, **Yuting Wei**, “A non-asymptotic framework for approximate message passing in spiked models,” arxiv:2208.03313, under revision, *Annals of Statistics*, 2022.
- J5. Pratik Patil, Arun Kuchibhotla, **Yuting Wei**, Alessandro Rinaldo, “Mitigating multiple descents: A model-agnostic framework for risk monotonization,” arxiv:2205.12937, 2022.
- J6. Gen Li, Laixi Shi, Yuxin Chen, Yuejie Chi, **Yuting Wei**, “Settling the Sample Complexity of Model-Based Offline Reinforcement Learning,” arxiv:2204.05275, under revision, *Annals of Statistics*, 2022.
- J7. Yue Li, **Yuting Wei**, “Minimum  $\ell_1$  Interpolators: Precise Asymptotics and Multiple Descent,” arxiv:2110.09502, 2021.
- J8. Shicong Cen, **Yuting Wei**, Yuejie Chi, “Fast Policy Extragradient Methods for Competitive Games with Entropy Regularization,” arXiv:2105.15186, under revision, *Journal of Machine Learning Research*, 2021.
- J9. Jingyan Wang, Ivan Stelmakh, **Yuting Wei**, Nihar B. Shah, “Debiasing Evaluations That are Biased by Evaluations,” under revision, *Journal of Machine Learning Research*, 2021.
- J10. Michael Celentano, Andrea Montanari, **Yuting Wei** (alphabetical order), “The Lasso with General Gaussian Designs with Applications to Hypothesis Testing,” arXiv:2007.13716, under revision, *Annals of Statistics*, 2020.
- J11. Gen Li, Changxiao Cai, Yuxin Chen, **Yuting Wei**, Yuejie Chi, “Is Q-Learning Minimax Optimal? A Tight Sample Complexity Analysis,” arXiv:2102.06548, accepted to *Operations Research*, 2023.
- J12. Gen Li, **Yuting Wei**, Yuejie Chi, and Yuxin Chen, “Breaking the Sample Size Barrier in Model-Based Reinforcement Learning with a Generative Model,” arXiv:2005.12900, accepted to *Operations Research*, 2023.
- J13. Gen Li, **Yuting Wei**, Yuejie Chi, Yuxin Chen, “Softmax Policy Gradient Methods Can Take Exponential Time to Converge,” arXiv:2102.11270, accepted to *Mathematical Programming*, 2022.
- J14. Zhimei Ren, **Yuting Wei**, Emmanuel J. Candès, “Derandomizing Knockoffs,” arxiv:2012.02717, accepted to *Journal of the American Statistical Association (JASA)*, vol. 118, no. 542, pp. 948-958, 2023.
- J15. Shicong Cen, Chen Cheng, Yuxin Chen, **Yuting Wei** and Yuejie Chi, “Fast Global Convergence of Natural Policy Gradient Methods with Entropy Regularization,” *Operations Research*, vol. 70, no. 4, pp. 2563-2578, 2022. **INFORMS George Nicholson Paper Award Finalist.**
- J16. Gen Li, **Yuting Wei**, Yuejie Chi, Yuantao Gu, and Yuxin Chen, “Sample Complexity of Asynchronous Q-Learning: Sharper Analysis and Variance Reduction,” *IEEE Transactions on Information Theory*, vol. 68, no. 1, pp. 448-473, 2022.
- J17. Minshi Peng, Yue Li, Brie Wamsley, **Yuting Wei**, Kathryn Roeder, “Integration and transfer learning of single-cell transcriptomes via cFIT,” *Proceedings of the National Academy of Sciences (PNAS)*, vol. 118, no. 10, 2021.
- J18. Minshi Peng, Brie Wamsley, Andrew Elkins, Daniel M Geschwind, **Yuting Wei**, Kathryn Roeder, “Cell Type Hierarchy Reconstruction via Reconciliation of Multi-resolution Cluster Tree,” *Nucleic Acids*

*Research*, vol. 49, no. 16, 2021.

- J19. Chen Cheng, **Yuting Wei**, and Yuxin Chen, “Tackling Small Eigen-gaps: Fine-Grained Eigenvector Estimation and Inference under Heteroscedastic Noise,” *IEEE Transactions on Information Theory*, vol. 67, no. 11, pp. 7380-7419, 2021.
- J20. **Yuting Wei** and Martin Wainwright, “The Local Geometry of Testing in Ellipses: Tight Control via Localized Kolmogorov Widths,” *IEEE Transactions on Information Theory*, vol. 66, no. 8, pp. 5110-5129, 2020.
- J21. **Yuting Wei**, Billy Fang, and Martin Wainwright, “From Gauss to Kolmogorov: Localized Measures of Complexity for Ellipses,” *Electronic Journal of Statistics*, vol. 14, no. 2, pp. 2988-3031, 2020.
- J22. **Yuting Wei**, Martin Wainwright and Adityanand Guntuboyina, “The Geometry of Hypothesis Testing over Convex Cones: Generalized Likelihood Tests and Minimax Radii,” *Annals of Statistics*, vol. 47, no. 2, pp. 994-1024, 2019.
- J23. **Yuting Wei\***, Fanny Yang\* and Martin Wainwright, “Early Stopping for Kernel Boosting Algorithms: A General Analysis with Localized Complexities,” *IEEE Transactions on Information Theory*, vol. 65, no. 10, pp. 6685-6703, 2019.
- J24. Tony Cai, Adityanand Guntuboyina and **Yuting Wei** (alphabetical order), “Adaptive Estimation of Planar Convex Sets,” *Annals of Statistics*, vol. 46, no. 3, pp. 1018-1049, 2018.
- J25. Wen-Jun Shen\*, **Yuting Wei\***, Xin Guo\*, Stephen Smale, Hau-San Wong and Shuaicheng Li, “MHC Binding Prediction with KernelRLSpan and Its Variations,” *Journal of Immunological Methods*, vol. 406, pp. 10-20, 2014.

## Refereed Conference Proceedings

- C1. Gen Li, Yuejie Chi, **Yuting Wei**, Yuxin Chen, “Minimax-optimal multi-agent RL in Markov games with a generative model,” *Neural Information Processing Systems (NeurIPS)*, **oral presentation**, 2022.
- C2. Laixi Shi, Gen Li, **Yuting Wei**, Yuxin Chen, Yuejie Chi, “Pessimistic Q-Learning for offline reinforcement learning: Towards optimal sample complexity,” *International Conference on Machine Learning (ICML)*, 2022.
- C3. Pratik Patil, **Yuting Wei**, Alessandro Rinaldo, Ryan Tibshirani, “Uniform consistency of cross-validation estimators for high-dimensional ridge regression,” *International Conference on Artificial Intelligence and Statistics (AISTATS)*, **oral presentation** (10.5% of accepted papers), 2021.
- C4. Jingyan Wang, Ivan Stelmakh, **Yuting Wei**, Nihar B. Shah, “Debiasing Evaluations That are Biased by Evaluations,” *AAAI Conference on Artificial Intelligence*, 2021.
- C5. Shicong Cen, **Yuting Wei**, Yuejie Chi, “Fast Policy Extragradients Methods for Competitive Games with Entropy Regularization,” *Neural Information Processing Systems (NeurIPS)*, 2021.
- C6. Gen Li, Yuxin Chen, Yuejie Chi, Yuantao Gu, **Yuting Wei**, “Sample-Efficient Reinforcement Learning is Feasible for Linearly Realizable MDPs with Limited Revisiting,” *Neural Information Processing Systems (NeurIPS)*, 2021.
- C7. Gen Li, **Yuting Wei**, Yuejie Chi, Yuantao Gu, and Yuxin Chen, “Softmax Policy Gradient Methods Can Take Exponential Time to Converge,” *Conference on Learning Theory (COLT)*, 2021.
- C8. Gen Li, Changxiao Cai, Yuxin Chen, Yuantao Gu, **Yuting Wei**, Yuejie Chi, “Tightening the Dependence on Horizon in the Sample Complexity of Q-Learning,” *International Conference on Machine Learning (ICML)*, 2021.
- C9. Yue Li, Ilum Kim, **Yuting Wei**, “Randomized Tests for High-Dimensional Regression: A More Efficient and Powerful Solution,” *Neural Information Processing Systems (NeurIPS)*, 2020.
- C10. Gen Li, **Yuting Wei**, Yuejie Chi, Yuantao Gu, and Yuxin Chen, “Breaking the Sample Size Barrier in Model-Based Reinforcement Learning with a Generative Model,” *Neural Information Processing*

*Systems (NeurIPS)*, 2020.

- C11. Gen Li, **Yuting Wei**, Yuejie Chi, Yuantao Gu, and Yuxin Chen, “Sample Complexity of Asynchronous Q-Learning: Sharper Analysis and Variance Reduction,” *Neural Information Processing Systems (NeurIPS)*, 2020.
- C12. Chen Dan, **Yuting Wei** and Pradeep Ravikumar, “Sharp Statistical Guarantees for Adversarially Robust Gaussian Classification,” *International Conference on Machine Learning (ICML)*, 2020.
- C13. **Yuting Wei**, Fanny Yang and Martin Wainwright, “Early Stopping for Kernel Boosting Algorithms: A General Analysis with Localized Complexities,” *Neural Information Processing Systems (NeurIPS)*, **spotlight presentation**, 2017.
- C14. **Yuting Wei** and Martin Wainwright, “Sharp Minimax Bounds for Testing Discrete Monotone Distributions,” *International Symposium on Information Theory (ISIT)*, 2016.

## Invited Talks

- T1. “A non-asymptotic framework for the approximate message passing algorithm,” *ICSA International Conference, Hong Kong*, Jul. 2023
- T2. “A non-asymptotic framework for the approximate message passing algorithm,” *ICSA China Conference, Chengdu*, Jul. 2023
- T3. “A non-asymptotic framework for the approximate message passing algorithm,” *SIAM Conference on Optimization, Seattle*, May. 2023
- T4. “A non-asymptotic framework for the approximate message passing algorithm,” *Statistics Seminar, Stanford University*, Apr. 2023
- T5. “A non-asymptotic framework for the approximate message passing algorithm,” *Statistics Colloquium, University of Chicago*, Mar. 2023.
- T6. “A non-asymptotic framework for the approximate message passing algorithm,” *Applied Probability and Risk (APR) Seminar, Columbia University*, Mar. 2023.
- T7. “A non-asymptotic framework for approximate message passing in spiked models,” *Statistics Annual Winter Workshop on Modern Computational Statistics, University of Florida, Gainesville*, Jan. 2023.
- T8. “A non-asymptotic framework for approximate message passing in spiked models,” *Computational and Methodological Statistics, London*, Dec. 2022.
- T9. “Modern perspectives in high-dimensional statistics: Two recent stories,” *Statistics Seminar, Tianyuan Mathematical Center in Central China, Wuhan*, Dec. 2022.
- T10. “Modern perspectives in high-dimensional statistics: Two recent stories,” *Statistical challenges and new solutions for large-scale complex data, Kunming, virtual*, Nov. 2022.
- T11. “On the effectiveness and ineffectiveness of policy optimization for reinforcement learning,” *Seminar of Statistics and Data Science, Hong Kong University of Science and Technology*, Oct. 2022.
- T12. “Settling the sample complexity of model-based offline reinforcement learning,” *Informa Annual Meeting, Indianapolis*, Oct. 2022.
- T13. “Settling the sample complexity of model-based offline reinforcement learning,” *Asilomar Conference on Signals, Systems, and Computers*, Oct. 2022.
- T14. “A non-asymptotic framework for approximate message passing in spiked models,” *SIAM Conference on Mathematics of Data Science (MDS22), San Diego*, Sep. 2022.
- T15. “A non-asymptotic framework for approximate message passing in spiked models,” *Probability Seminar, UC Davis*, Sep. 2022.
- T16. “Beyond  $o(\log n / \log \log n)$  iterations: A non-asymptotic framework for approximate message passing in spiked models,” *Joint Statistical Meetings, Washington, D.C.*, Aug. 2022.
- T17. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *Bernoulli Young Re-*

- searchers Workshop*, virtual, Jul. 2022.
- T18. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *ICSA China Conference*, virtual, Jul. 2022.
- T19. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *Youth in High-Dimensions: Recent Progress in Machine Learning, High-Dimensional Statistics and Inference*, Jun. 2022.
- T20. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *International Conference on Econometrics and Statistics (EcoSta)*, Jun. 2022.
- T21. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *New Advances in Statistics and Data Science, Hawaii*, May. 2022.
- T22. “Beyond  $o(\log n / \log \log n)$  Iterations: Non-asymptotic Analysis for Approximate Message Passing,” *ICMS workshop, Edinburgh*, May. 2022.
- T23. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *Statistics Seminar, Cambridge University*, May. 2022.
- T24. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *Probabilitas Seminar, Harvard University*, Mar. 2022.
- T25. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *52nd Annual Conference on Information Systems and Sciences (CISS) conference, Princeton*, Mar. 2022.
- T26. “Exponential lower bounds and fast convergence for policy optimization,” *Martin Wainwright’s group, UC Berkeley*, Nov. 2021.
- T27. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent,” *Workshop on Seeking Low Dimensionality in Deep Neural Networks (SLOWDNN)*, Nov. 2021.
- T28. “Breaking the sample size barrier in reinforcement learning,” *Stochastics and Statistics Seminar, MIT*, Oct. 2021.
- T29. “Bridge over troubled water: Lower bounds and fast convergence for policy optimization,” *Informa Annual Meeting*, Oct. 2021.
- T30. “Minimum  $\ell_1$ -norm interpolators: Precise asymptotics and multiple descent” *Peter Bartlett’s group, UC Berkeley*, Oct. 2021.
- T31. “Sample complexity of Q-learning: Sharper analysis and minimax optimality,” *ICSA 2021 Symposium*, Sep. 2021.
- T32. “Breaking the sample size barrier in reinforcement learning,” *Statistics Seminar, Duke University*, Sep. 2021.
- T33. “Breaking the sample size barrier in reinforcement learning,” *Joint Statistical Meetings (JSM)*, Aug. 2021.
- T34. “Softmax policy gradient methods can take exponential time to converge,” *Conference on Learning Theory (COLT)*, Aug. 2021.
- T35. “Statistical Inference over Convex Cones,” *SIAM Conference on Optimization*, July. 2021.
- T36. “Modern statistical perspectives in reinforcement learning and early stopping,” *Statistics Seminar, Harvard University*, Feb. 2021.
- T37. “Breaking the sample size barrier in reinforcement learning,” *Statistics Seminar, Wharton Statistics Seminar, University of Pennsylvania*, Feb. 2021.
- T38. “Modern Statistical Perspectives in Reinforcement Learning and Early Stopping,” *Statistics Seminar, Department of Data Sciences and Operations, University of Southern California*, Feb. 2021.
- T39. “Breaking the Curse of Dimensionality: From Sparse Regression to Kernel Boosting,” *Statistics Seminar, Stern School of Business, New York University*, Jan. 2021.
- T40. “Breaking the sample size barrier in reinforcement learning,” *Statistics Seminar, Yale University*, Jan. 2021.



- T41. “Breaking the Sample Size Barrier in Statistical Inference and Reinforcement Learning,” *Wilks Statistics Seminar, ORFE, Princeton University*, Dec. 2020.
- T42. “Breaking the Sample Size Barrier in Statistical Inference and Reinforcement Learning,” *Statistics Seminar, Rutgers University*, Dec. 2020.
- T43. “Breaking the sample size barrier in model-based reinforcement learning with a generative model,” *Informa Annual Meeting*, Nov. 2020.
- T44. “Breaking the sample size barrier in model-based reinforcement learning with a generative model,” *Richard Samworth’s group, Cambridge University*, Nov. 2020.
- T45. “Reliable hypothesis testing paradigms in high dimensions,” *Columbia University, Statistics Seminar*, Oct. 2020.
- T46. “Reliable hypothesis testing paradigms in high dimensions,” *Young Data Science Researcher Seminar Zurich, ETH*, Oct. 2020.
- T47. “Reliable hypothesis testing paradigms in high dimensions” *Michigan State University, Statistics Seminar*, Oct. 2020.
- T48. “The Lasso with general Gaussian design with application to hypothesis testing,” *Joint Statistical Meeting*, Aug. 2020.
- T49. “Breaking the sample size barrier in model-based reinforcement learning with a generative model,” *TBSI Workshop on Learning Theory, Shenzhen*, Jul. 2020.
- T50. “Understanding the distribution of the Lasso and its applications,” *STATML Group, Carnegie Mellon University*, Mar. 2020.
- T51. “A geometric perspective on hypothesis testing,” *ICSA International Conference, Hangzhou, China*, Dec. 2019.
- T52. “Towards a better understanding of the regularization in kernel learning,” *TBSI Workshop on Learning Theory, Shenzhen*, Dec. 2019.
- T53. “Towards a better understanding of the regularization in kernel learning,” *Statistics Seminar, Cambridge University*, Nov. 2018.
- T54. “Towards a better understanding of the regularization in kernel learning,” *Big Data and Computational Social Science Lecture, University of British Columbia*, Mar. 2019.
- T55. “Early stopping for gradient type algorithms,” *Computational and Methodological Statistics, University of Pisa, Italy*, Dec. 2018.
- T56. “The geometry of hypothesis testing over convex cones,” *52nd Annual Conference on Information Systems and Sciences (CISS) conference, Princeton*, Mar. 2018.
- T57. “Geometric analysis of hypothesis testing and early stopping for boosting,” *Statistics Seminar, Carnegie Mellon University*, 2018.
- T58. “Geometric analysis of hypothesis testing and early stopping for boosting,” *Statistics Seminar, Stanford University*, 2018.
- T59. “Geometric analysis of hypothesis testing and early stopping for boosting,” *Statistics Seminar, University of Michigan*, 2018.
- T60. “Geometric analysis of hypothesis testing and early stopping for boosting,” *Statistics Seminar, University of Pennsylvania*, 2018.
- T61. “Shape-constrained methods: Inference, applications, and practice,” *Banff International Research Station for Mathematical Innovation and Discovery (BIRS), Canada*, 2018.
- T62. “Early stopping for kernel boosting algorithms,” *Neural Information Processing Systems (NIPS) conference, Long Beach*, 2017.
- T63. Student talk for Oberwolfach Workshop “Statistical Recovery of Discrete, Geometric and Invariant

Structures”, 2017.

- T64. “Sharp minimax bounds for testing discrete monotone distributions,” *International Symposium on Information Theory (ISIT) conference, Barcelona*, 2016.
- T65. “Adaptive estimation of planar convex sets,” *Berkeley Statistics Annual Research Symposium (BSTARS)*, 2016.
- T66. “Sharp minimax bounds for testing discrete monotone distributions.” *Stanford-Berkeley Joint Colloquium*, 2016.

## Other Invited Workshops

- Semester program on computational complexity of statistical inference (long-term participant). Simons Institute, Berkeley, CA, 2021.
- Workshop on statistics meets machine learning. Oberwolfach, Germany, 2020.
- Workshop on statistical recovery of discrete, geometric and invariant structures. Oberwolfach, Germany, 2017.

## Ph.D. Students & Postdocs

1. Wei Fan, Ph.D. in Statistics, 2022 -
2. Weichen Wu, Ph.D. in Statistics, 2019 - (co-advised with Alessandro Rinaldo)
3. Hong Hu, Postdoctoral researcher, 2022 - (co-advised with Yuxin Chen)
4. Gen Li, Postdoctoral researcher, 2021 - (co-advised with Yuxin Chen)
5. Yue Li, Ph.D. in Statistics, 2022 (co-advised with Kathryn Roeder)
6. Minshi Peng, Ph.D. in Statistics, 2021 (co-advised with Kathryn Roeder)

## Doctoral Committees

1. Pratik Patil (CMU, Statistics & Machine Learning)
2. Chen Dan (CMU, Computer Science)
3. Yufei Yi (CMU, Statistics)

## Teaching

University of Pennsylvania:

- STAT 9910-302: Mathematical Foundations of Reinforcement Learning, Fall 2023
- STAT430: Probability, Spring 2022

Carnegie Mellon University:

- 36-747: Mathematics for High Dimensional Data: A statistical viewpoint, Spring 2021
- 36-748: Mathematics for High Dimensional Data: An optimization viewpoint, Spring 2021
- 36-225: Introduction to Probability, Fall 2020
- 36-741: Statistics meets Optimization: Iterative sketching methods, Fall 2019
- 36-742: Statistics meets Optimization: Approximate message passing algorithms, Fall 2019

Stanford University:

- Statistics 314: Advanced Statistical Theory, Spring 2019
- Statistics 206: Applied Multivariate Statistical Analysis, Winter 2018



## University and Department Service

- Statistics seminar organizer at UPenn statistics, 2023 - 2024
- Statistics departmental postdoc selection committee at UPenn statistics, 2021 - 2023
- Admission committee at UPenn statistics, 2021 - 2023
- Statistics department seminar co-organizer at CMU, 2019 - 2021
- Faculty senate member at CMU, 2019 - 2021
- Statistics department seminar co-organizer at Stanford, 2018 - 2019

## Selected Professional Service

**Grant reviewer:** National Science Foundation (2022)

**Reviewer for journals:** Annals of Statistics, Journal of the Royal Statistical Society: Series B, Journal of the American Statistical Association, Journal of Machine Learning Research, Biometrika, IEEE Transactions on Information Theory, Statistica Sinica, Electronic Journal of Statistics, Operations Research, SIAM Journal on Mathematics of Data Science, Journal of the Korean Statistical Society

**Reviewer for conferences:** Conference on Neural Information Processing Systems (NeurIPS), International Conference on Machine Learning (ICML), Annual Conference on Learning Theory (COLT), International Conference on Artificial Intelligence and Statistics (AISTATS), IEEE International Symposium on Information Theory (ISIT), Asian Conference on Machine Learning (ACML)

## Selected Conferences and Workshop Organization

- Co-organizer of Workshop on Computational-Statistical Interplay in Machine Learning, MIT, May 2023.
- Co-organizer of the Oberwolfach Mini-workshop: Mathematical Foundations of Robust and Generalizable Learning, Germany, Oct 2022.
- Co-organizer for the AI panel of 2021 US World Innovation Summit, Sep 2021.